

CLAIMS

1. A stack, to be used in a fuel cell or electrolyser, comprising a
5 collector layer, at least one diffusion layer and at least one anchoring
layer, said collector layer being a metal foil or metal plate, said
diffusion layer being a metal mesh or expanded metal sheet or a
sheet of foamed metal, characterized in that said anchoring layer
comprising metal fibers, said anchoring layer having a thickness of
10 less than 0.5mm, said anchoring layer being provided between said
collector layer and said diffusion layer, said collector layer, anchoring
layer and diffusion layer being sintered to each other.
2. A stack, to be used in a fuel cell or electrolyser as in claim 1,
15 comprising two diffusion layers and two anchoring layers, the first of
said diffusion layers being present at one side of said collector
layers, the second of said diffusion layers being present at the other
side of said collector layers, said anchoring layers being present
between said collector layer and said diffusion layers.
- 20 3. A stack, to be used in a fuel cell or electrolyser as in claim 1 or 2,
said anchoring layer having a weight of less than 350 g/m².
- 25 4. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 3,
said anchoring layer having a porosity of more than 60%, said
porosity being less than 98%.
5. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 4,
30 said diffusion layer having an open area of more than 30%.
6. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 5,
said diffusion layer having a thickness of more than 1mm.

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7. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 6, said diffusion layer comprising a metal mesh, said metal mesh comprising metal wires having a diameter of more than 0.5mm.
8. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 6, said diffusion layer comprising an expanded metal sheet, said expanded metal sheet having a thickness of less than 1.2mm.
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9. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 8, said metal fibers of said anchoring layer having an equivalent diameter of more than $2\mu\text{m}$.
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10. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 9, said stack further comprising at least one contact layer, being sintered to the side of said diffusion layer which is not connected to said anchoring layer, said contact layer comprising metal fibers.
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11. A stack, to be used in a fuel cell or electrolyser as in claim 10, said metal fibers of said contact layer having an equivalent diameter of less than $30\mu\text{m}$.
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12. A stack, to be used in a fuel cell or electrolyser as in claim 10 or 11, said contact layer having a thickness of less than 0.2mm.
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13. A stack, to be used in a fuel cell or electrolyser as in claim 10 to 12, said contact layer having a perpendicular air permeability of less than $200 \text{ l/min}\cdot\text{dm}^2$.
14. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 13, said stack having a planar air permeability of more than $0.02 \text{ l/min}\cdot\text{cm}$.

15. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 14,
said metal fibers of said anchoring layer being stainless steel fibers.
- 5 16. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 14,
said metal fibers of said anchoring layer being Ni-fibers or Ni-alloy
fibers.
- 10 17. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 14,
said metal fibers of said anchoring layer being Ti-fibers.
- 15 18. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 17,
said collector layer, said diffusion layers and said anchoring layers
being provided out of the same metal or metal alloy.
19. A stack, to be used in a fuel cell or electrolyser as in claim 1 to 18, all
of said layers being provided out of the same metal or metal alloy
- 20 20. A fuel cell, comprising stacks as in claim 1 to 19.
21. An electrolyser, comprising stacks as in claim 1 to 19.
22. The use of a stack as in claim 1 to 19 in fuel cells or electrolyzers.